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November 1st.

MR. CASSIN in the Chair.

Fourteen members present.

Mr. Leslie exhibited specimens of limestone rock, containing fossil coral, charged with petroleum, from the base of the Devonian formation, near Lake Erie, western New York. He also exhibited a specimen of petroleum from the first well opened at Erie, Pa., on probably the same horizon as that of the former specimens. The oil was obtained at a depth of 750 feet.

November 8th.

Vice-President BRIDGES in the Chair.

Nine members present.

November 15th.

Vice President BRIDGES in the Chair.

Twelve members present.

A paper was presented for publication entitled "On a new Cormorant from the Farralone Islands, California." By J. G. Cooper, M. D.

November 22d.

Vice-President BRIDGES in the Chair.

Fifteen members present.

A paper was presented for publication entitled "Synopsis of the eastern American Sharks." By Theo. Gill.

November 29th.

Vice-President BRIDGES in the Chair.

Sixteen members present.

On report of the respective committees the following papers were ordered to be published:

Synopsis of the Eastern American SHARKS.

BY THEODORE GILL.

In the present article, I indicate the imperfection of our knowledge respecting the American Sharks, and have endeavored, as far as possible, with my limited materials, to rectify the synonymy. It will be perceived that I have connected names, proposed by Mitchill and others, with species belonging to different families from those to which they had been previously referred. No specific contradiction in the descriptions existing, and the diagnoses essentially agreeing with the species, it is probable that in such cases the generic relations of the species were *assumed* without verification of the generic characters. But

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when, as in the case of *Carcharias griseus** of Mr. Ayres, the generic position is not only assumed, but the characters *forced* to agree with it, tyros might be readily misled, and only knowledge of correlation of essential characters will enable the scientist to arrive at correct conclusions. As I have had the power of examining Odontaspidoids from the same neighborhood which agree, in family characters, with those species described by scientific naturalists, and which essentially agree in other respects with Mr. Ayres' description, I identify them with his species without hesitation, although I cannot adopt the name, since it had received two others previously. I may add that its true relations have been appreciated by both Messrs. Desor and Storer.

As already intimated, this contribution must be considered rather as an exposition of our present ignorance of the species, than the embodiment of the correct nomenclature. It is not too much to say that the titles of half the species to their names require to be confirmed. Although I have seen more or less of most of these species, the want of opportunity to compare them with others, and the critical nature of the characters distinctive of species in this order, forbid the idea of correctness in every instance. As, however, much good may often be done by the mere exposition of our deficiencies, this article is submitted with the hope that it may at least excite investigation.

The synonymy of the American forms is alone introduced.

- I. Pectoral fin with the base entire in front..... SQUALI.
 - A. Anal fin present.
 - a. Caudal lunate; *tail keeled on one side*..... LAMNOIDÆ.
 - aa. Caudal with the upper lobe much elongated.
 - β. Branchial apertures entirely in front of pectorals..... ODONTASPIDOIDÆ.
 - ββ. Branchial aperture behind above pectoral.
 - γ. Caudal exceedingly long. Eyes without nictitant membrane..... ALOPECOIDÆ.
 - γγ. Caudal moderately elongated. Eyes with nictitant membrane.
 - Head laterally produced..... CESTRACIANTOIDÆ.
 - Head normally formed GALEORHINOIDÆ.
 - AA. Anal fin obsolete.
 - Dorsals each armed in front with spine..... SPINACOIDÆ.
 - Dorsals unarmed..... SCYMNOIDÆ.
- II. Pectoral fin with with the base cleft in front..... RHINÆ.
 - RHINOIDÆ.

LAMNOIDÆ, Müll. and Henle.

CETORHININÆ Gill.

CETORHINUS Blainv.

Tetroras Raf., 1810 (desc. and name erroneous.)

Selache Cuv., 1817.

Selachus Yarrell.

CETORHINUS MAXIMUS Blainv.

Squalus maximus (L.) Fab., F. G. 130. Mit., Tr. N. Y. i. 486.

Squalus elephas Des., Journ. Ac. ii. 350.

Squalus rhinoceros Mit., 1828 (fide DeKay.)

Squalus (Selache) maximus Rich., F. B. iii. 291.

Squalus (Selache) elephas Storer, Rep. 407.

* The figure of this species, like the description, is thoroughly unreliable; it is better, however, than that of the *Myliobatis bispinosus*, in which more attention appears to have been paid to the delineation of mathematical figures and lines than to the representation of nature.

(See Boston Journal N. H., iv., pl. 13.)

Selachus maximus DeKay, N. Y. F. iv. 357; *St. Syn.* 254.

Hab. Am. Greenland to New Jersey.

If there is any actual difference between the American and European representatives of this genus, they have not yet been pointed out; the example of previous authors in referring both to *C. maximus* is, therefore, still followed. The synonymy of the American fish is alone given.

ISURINÆ Gill.

CARCHARODON A. Smith.

Carcharias obscurus Storer. Bn. Journ. ii. 558, (excl. syn.)

Carcharias Atwoodi Storer, Bn. Proc. 1848, p. 72.

"The first dorsal fin is one foot in length."

"The second dorsal is one inch long." "The anal fin is one inch long."

"The upper lobe of the caudal fin measures two feet over its curvature; the lower lobe measures one foot and a half."

These measurements of the fish, called by Dr. Storer *C. obscurus*, are incompatible with any form of the family of Galeorhinoidæ; the description is only reconcilable with *Carcharodon*. I had, however, at one time supposed that it might be referrible to *Eulamia*,* the notice of the dentition, except as to number of teeth ($\frac{16}{18}$) in which it agrees with no shark, being vaguely applicable.

The *Carcharias Atwoodi* is also probably the same species, the anal being said to be far behind the second dorsal, and thus distinguished from the "white shark." Dr. Storer doubtless obtained his idea of the latter from Yarrell's copy of Belon's figure, which erroneously represents a *Carcharodon* with the anal opposed to that fin.

Having been shown a tooth of a *Galeocerdo*, said to have been taken from *C. Atwoodi*, I have asked whether that species could have belonged to that genus, but the position of the anal and the triangular teeth forbid such identification.

ISUOPSIS Gill.

ISUOPSIS GLAUCUS, Gill.

Lamna punctata Storer, Boston Journ. ii. 534. Rep. 185, pl. 3, fig. 2.

Not *Squalus punctatus Mitch.*†

Oxyrhina Dekayi Gill, Cat. 60.

Isuopsis Dekayi Gill, Squali, 43. An. Lyc. N. Y. viii. 153.

Hab. Mass.; New York.

This species of the eastern coast is probably identical with *Isuopsis glaucus*, said by Müller and Henle to be a native of Java. As it has not, however, been found there by the indefatigable Bleeker, and has been eliminated from the recent enumeration of the species of the Archipelago, it is probable that such habitat is erroneous, and that the specimen described was obtained from Surinam. Prof. Poey has found apparently the same species at Cuba.

ODONTASPIDOIDÆ Gill.

EUGOMPHODUS Gill.‡

EUGOMPHODUS LITTORALIS, Gill.

Squalus americanus Mit., Trans. N. Y. i. 483 (not Shaw.)

* The *Carcharias obscurus* (Storer) must be considered under two heads:

1st. The fish mentioned in the report, which is a species of *Carcharodon*.

2d. Another individual identified by Dr. Storer with *Carcharias obscurus*, and dissected by Dr. Wyman, whose description (Boston Proc. iv. 123, 1851) of its viscera, &c., indicates that it belonged to the *Galeorhini*. The specimen examined by that accomplished anatomist was doubtless the *Eulamia Milberti*, and consequently related to the true *Carcharias obscurus*.

† "The caudal fin very unequally divided, the upper section being almost thrice as large as the lower, and having a process on the lower side." *Mitch.* Trans. N. Y. i. 485.

‡ *Eugomphodus* is distinguished from *Carcharias* (Raf.) *Triglochis* or *Odontaspis* by the simple first and fourth teeth of the upper jaw, as well as the first of the lower. The more anterior dorsals also separate it from *O. taurus*.

- Squalus littoralis* *Mit.*, Am. Monthly Mag. &c. ii. 328.
Squalus macrodus *Mit.*, op. cit. ii. 328.
Carcharias littoralis *DeKay*, iv. 351.
Carcharias griseus *Ayres*, Boston Journ. iv. 293.
Odontaspis griseus *Desor*, Bost. Proc. ii. 264.
Eugomphodus griseus *Gill*, Cat. 60.
Odontaspis americanus *Abbot*, Proc. Ac. N. S.
Eugomphodus littoralis *Gill*, op. cit. 1863, 333.
Hab. Mass. to New Jersey.

ALOPECOIDÆ.

ALOPIAS Raf.

ALOPIAS VULPES, Bon.

- Thresher or long tailed Shark *Mitch.*, Med. Rep. 2d hex., ii. 77.
Squalus vulpes (L.) *Mitch.*
Carcharias vulpes *DeK.*, iv. 348.
Alopias vulpes *Storer*, Syn. 253.
Hab. Mass. southwards.

CESTRACIONTOIDÆ.

CESTRACION Klein.

- Sphyrna* *Raf.*, 1810.
Sphyrnias *Raf.*, 1815.
Cestrorhinus *Blainv.*, 1816.
Zygæna *Cuv.*, 1817.
Platysqualus *Sw.*, 1839.
Sphyræ *Vanderhoeven*.

CESTRACION ZYGÆNA, Gill.

- Squalus zygæna* *L. Mitch.*, Trans. N. Y. i. 482.
Zygæna malleus *Cuv.*
Sphyrna zygæna *M. and H.*
Sphyrnias zygæna *Gray.*
Zygæna subarcuatus *Storer.*
Cestracion subarcuatus *Gill*, Cat.
Cestracion zygæna *Gill*, Squali.
Hab. Eastern coast generally.

RENICEPS Gill.

RENICEPS TIBURO Gill.

- Squalus tiburo* *Linn.*
Cestrorhinus tiburo *Blainv.*
Zygæna tiburo *Val.*
Sphyrna tiburo *M. and H.*
Sphyrnias tiburo *Gray.*
Cestracion tiburo *Gill*, Cat.
Reniceps tiburo *Gill*, Squali.
Hab. New York southwards.

GALEORHINOIDÆ Gill.

GALEORHININÆ Gill.

GALEORHINI.

EULAMIA Gill.

- Carcharias* *Cuv.*, (not *Raf.*)
 1864.]

EULAMIA MILBERTI Gill.

Squalus carcharias Mit.

Carcharias (Prionodon) Milberti (Val.) M. and H. 38.

Carcharias cæruleus DeKay, 349, pl. 61, f. 200.

Lamna caudata DeKay, 354, pl. 62, f. 205.

Squalus (Carcharinus) caudata Gray, 44 (excl. syn.)

Squalus (Carcharinus) cæruleus Gray, 44.

Squalus (Carcharinus) Milberti Gray 45.

Squalus Milberti Gill, Cat 59.

Squalus cæruleus Gill, Cat. 59.

Eulamia Milberti Gill, Squali 44.

The specific name here adopted was applied in MSS. by Valenciennes to a specimen sent from New York by Milbert, and was retained for a species to which that specimen, one from Leyden and one in the Museum of Berlin, obtained by Hemprich and Ehrenberg, were referred. The specimen on which the description and measurements were especially based is not specified. The description agrees quite well with the *Carcharias cæruleus* of DeKay.

The *Carcharias cæruleus* was established on a young female, and the *Lamna caudata* on the figure of an adult female obtained from Mr. Brevoort, to whom I have been indebted for the information.

That gentleman has shown to me the original drawing of which DeKay's figure was a professed copy. It is drawn with Mr. Brevoort's wonted accuracy, and distinctly represents the last branchial apertures above the pectoral fins; the species is, therefore, a true *Eulamia*, as its form indicates, and as was suspected by Dr. Gray.

With the European form, Nardo has identified his *Squalus plumbeus* as well as the *S. Cæcchia* of Chiareghin.

PLATYPODON Gill.

PLATYPODON OBSCURUS Gill.

Squalus obscurus Les.

Carcharias obscurus DeKay, (not Storer.)

Carcharias (Prionodon) obscurus M. and H.

Squalus (Carcharinus) obscurus Gray.

Messrs. Putnam and Nason have favored me with notices and partial figures of a shark taken on the coast, and preserved in the Museum of Williamstown College, which appeared to apply to this species. It is scarcely necessary to remark, that the teeth, represented by Lesueur, have been reversed, the wider one belonging to the upper and the narrow to the lower jaw.

APRIONODON Gill.

APRIONODON PUNCTATUS Gill.

Squalus punctatus Mitch. Trans. N. Y. i. 484.

Carcharias (Aprion) isodon (Val.) M. and H., 32.

Squalus (Aprion) isodon Gray, 43.

Aprionodon punctatus Gill, Cat.

Hab.—New York.

"Iris, oblong and vertical.

"Teeth small, triangular and without jagged edges.

"First dorsal — situated about the middle of the back. The second dorsal membranous, somewhat adipose, and of a rhomboidal figure. — An anal fin corresponding (opposite) to the second dorsal.

"The caudal fin very unequally divided; the upper section being almost thrice as large as the lower, and having a process on the lower side." (Mitchill.)

The *Squalus punctatus*, therefore, cannot be a species of *Lamna* as long supposed, nor yet a species of *Eulamia*, *Platypodon*, or even *Scoliodon*, with which, among known American species, it can alone have affinities.

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The habitat of *C. isodon* has not been specified; but as the specimen on which it was founded was sent by Mr. Milbert, it was probably obtained at New York.

SCOLIODON M. and H.

SCOLIODON TERRÆ-NOVÆ Gill.

Squalus (Carcharias) terræ-novæ Rich.

Scoliodon terra-novæ Gill, Cat.

Hab.—Newfoundland and New York.

As already indicated by Müller and Henle, (p. 189), the *S. terræ-novæ* of Richardson evidently belongs to the genus *Scoliodon* as now understood, and has no affinity with *Lamna* to which it has been referred by several authors.*

GALEOCERDO M. and H.

Boreogaleus Gill.

GALEOCERDO TIGRINUS M and H.

Galeus maculatus Ranz.

To this species I refer two jaws, said to have been obtained on the eastern coast, and others from the West Indies, Lower California and the Western Pacific. The jaws are from adult fishes, and resemble in the form of the teeth the *G. arcticus*.

Müller and Henle distinguish two species of *Galeocerdo*.

G. tigrinus with, 1, a moderate flat snout; 2, teeth $\frac{2\frac{5}{2}}{2\frac{5}{2}}$, coarsely serrate, and the unpaired one little bent, and with an entire terminal point; 3, elongated caudal; 4, spotted body; 5, last two branchial apertures above the pectorals; 6, anal fin, with the anterior lobe little produced and rounded.

G. arcticus with, 1, a very short snout; 2, teeth $\frac{2\frac{3}{2}}{2\frac{3}{2}}$, finely crenulated, the unpaired teeth curved and crenulated throughout; 3, caudal moderate; 4, immaculate body; 5, fifth branchial aperture only above the pectorals; 6, anal with its anterior lobe much produced and pointed.

Placing an undue value on these differences, I formerly proposed to generically distinguish *G. arcticus*.

To Prof. Poey I am indebted for the figure of an adult *Galeocerdo*, exhibiting the gills and anal fin of *G. tigrinus*, but the form and teeth of *G. arcticus*; he believes that his fish is only the adult form of *G. tigrinus*, and I am obliged to agree with him in this view. The body, and especially the caudal and snout, became abbreviated with age, and the teeth change. The jaws seen by me exhibit variations in number from 21 to 23, but none $\frac{2\frac{5}{2}}{2\frac{5}{2}}$. Can the latter formula be the result of a typographical error?

MUSTELINÆ Bon.

MUSTELUS Cuv.

MUSTELUS CANIS Dekay.

Squalus canis Mitch. Trans. N. Y. i. 486.

Mustelus canis Dekay.

Hab.—Eastern coast.

SPINACOIDÆ Owen.

SQUALUS Art. Raf.

SQUALUS AMERICANUS Gill.

Squalus acanthias Mitch. (vix auct.)

The *S. terræ-novæ* and *Lamna punctata* (*Aprionodon*)—Galeorhinoids—have been regarded as identical and belonging to the genus *Lamna*.

- Spinax acanthias*? *DeKay*.
Acanthias americanus *St. Syn.* 254.
Squalus americanus *Gill*, *Proc. Acad.* 1862.
Hab.—Eastern coast generally.

CENTROSCYLLIUM M. and H.

CENTROSCYLLIUM FABRICII M. and H.

- Squalus acanthias* *Fab.* (not L.)
Spinax Fabricii *Reinh.*
Centroscyllium Fabricii *M. and H. Plag.*
Hab.—Greenland.

SCYMNOIDÆ* *Owen*.SOMNIOSUS *Les.*SOMNIOSUS MICROCEPHALUS *Gill*.

- Squalus microcephalus* *Bl. Schn.* 135.
Squalus borealis *Scoresby*, i. 358; xv. 3, 4.
Scymnus borealis *Fleming*, 166.
Squalus (*Scymnus*) *glacialis* *Faber*, 23.
Scymnus micropterus *Val. Nouv. Mem.* i. 455, pl. xx.
Squalus norwegianus *Blainv.* F. Fr. 61.
Scymnus (*Læmargus*) *borealis*, *M. and H.* 93.
Dalatias (*Somniosus*) *borealis* *Gray*, 76.
Somniosus microcephalus *Gill*, *Cat.*
Somniosus brevipinna *Les.*
Scymnus brevipinna *DeKay*.
Leiodon echinatus *Wood*.

Hab.—Greenland to Cape Cod.

It is probable, as indicated in my catalogue, that the *S. brevipinna* is not distinct from *S. microcephalus*.

RHINOIDÆ *Gill*.RHINA *Klein*.RHINA DUMERILI *Gill*.

- Squatina Dumeril* *Lesueur*.
Rhina Dumerili *Gill*, *Cat.*
Hab.—New York?

Genus PLATYPODON *Gill*.*Synonymy.*

- =*Platypodon* *Gill*, *Analytical Synopsis of the order of Squali*, p. 35; in *Annals of the Lyceum of Nat. Hist. of New York*, vol. viii. p. 401, 1861.
Carcharias (*Prionodon*), sp. *Müller and Henle*.
Squalus (*Prionodon*), sp. *Poey*.
Isoplagiodon, sp. *Gill*.

Body slender and fusiform in profile, tapering behind.

Scales tricuspid, surmounted by three keels terminating with the cusps.

* The family Scymnoidæ is represented by five distinct genera.

1. *Scymnus*.
2. *Isistius* (*Scymnus brasiliensis* *M. and H.*) distinguished by its similar and posterior dorsals, &c.
3. *Somniosus*.
4. *Euprotomicrus* (*Scymnus Laborii* *M. and H.*) with teeth like *Somniosus*, but in moderate number (c. 23) and very small first dorsal.
5. *Rhinoscymanus* (*Scymnus rostratus* *Risso*) distinguished by its dorsals, &c.

Head oblong, with the snout produced, oblong, gradually narrowed, and with its periphery convex. *Eyes* moderate, with the pupil vertical. *Nostrils* nearer the front of the mouth than the snout, nearly rectangular to mouth, with the anterior flap small and near the inner angle.

Mouth moderate, but convex in front, and wider than deep.

Teeth of upper and lower jaws dissimilar; of each jaw mostly similar, but smaller and more oblique towards the corners of the mouth; two symmetrical front ones in upper, an unpaired one in lower jaw; the two front teeth of the upper jaw inclined towards each other; the rest serrated, oblique, rectilinear or nearly so along the inner edge, and with an obtusely angled emargination at the outer edge, the lower branch of which forms the so-called heel. *Lower jaw* with a small azygous erect tooth at symphysis; the rest with broad bases and narrow oblique entire or weakly crenulated cusps, inclining more as they recede from the symphysis.

Branchial apertures moderate; the fourth, typically, nearly above the outer base of the pectoral fin.

Dorsal fins dissimilar; the first nearly midway between the pectoral and ventral fins, or little nearer the former, moderate, obtusely produced at the anterior angle, and acutely prolonged at the posterior; the second small, narrow, produced acutely from the posterior angle.

Anal fin nearly opposite the second dorsal, slightly larger than the latter, obtusely enlarged at the anterior angle, acutely produced at the posterior.

Caudal fin above with a pit at base, normally prolonged, and with a moderate lower lobe, narrow towards its rounded apex.

Pectoral fins moderate, but narrowed towards the rounded point, with the inner angle little produced.

Ventral fins moderate, rhomboidal.

Type.—*Platypodon menisorrah* Gill.

Syn.—*Carcharias* (*Prionodon*) *menisorrah* Müller and Henle.

This genus was first named in the "Analytical Synopsis of the Order of Squali," but no diagnosis was there given. *Platypodon* differs from *Isoplagiodon* in the dissimilarity of the teeth of the two jaws, the two paired teeth of the front jaw, and, perhaps, in the form of the mouth and narrower caudal portion of the tail. *Squalus tiburo* Poey, *S. acronotus* P. and *S. obscurus* Les., belong to it.

Notes of an Examination of the Birds of the Subfamily COEREBINÆ.

BY JOHN CASSIN.

1. Genus COEREBEA, Vieillot.

Coereba, Vieill., Ois. d'Am. Sept. ii. p. 70 (1807).

Arbelorhina, Cab., Schomb. Reisen iii. p. 675 (1848).

This name is now almost universally applied to the group for which I use it in this paper, and of which the bird described by Linnæus as *Certhia cyanea* may be presumed to be the type. Vieillot, as above cited, evidently adopts it as a name for a group which he regarded as a genus, intending to include that species (*C. cyanea*) to which the name *Guira-coereba Brasiliensibus* had been previously given by Marcgrave and Piso in Nat. Hist. Brasil, p. 212. It was not the usage of Vieillot nor of numerous other binomial authors, including Linnæus, to assume any one species as the type of a proposed or adopted genus, and in my opinion there is a very considerable degree of impropriety, as well as injustice, in ascribing to those authors any other than their real and palpable intentions. For genera, the names of which are adopted from other authors and the same groups intended to be designated, those authors, whether *ante-Linnæan* or other non-binomial, (or any other,) ought to be con-

1864.]